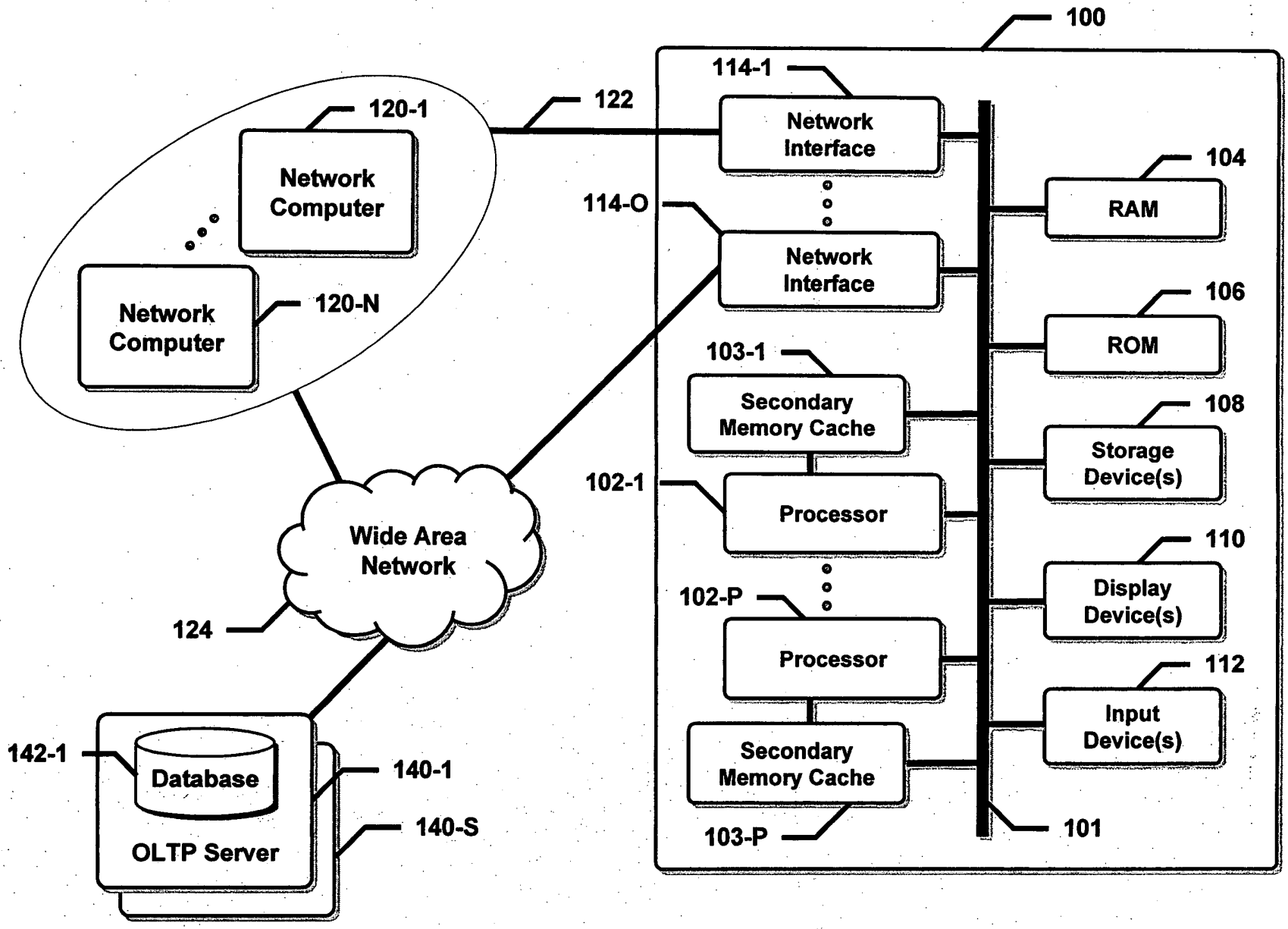
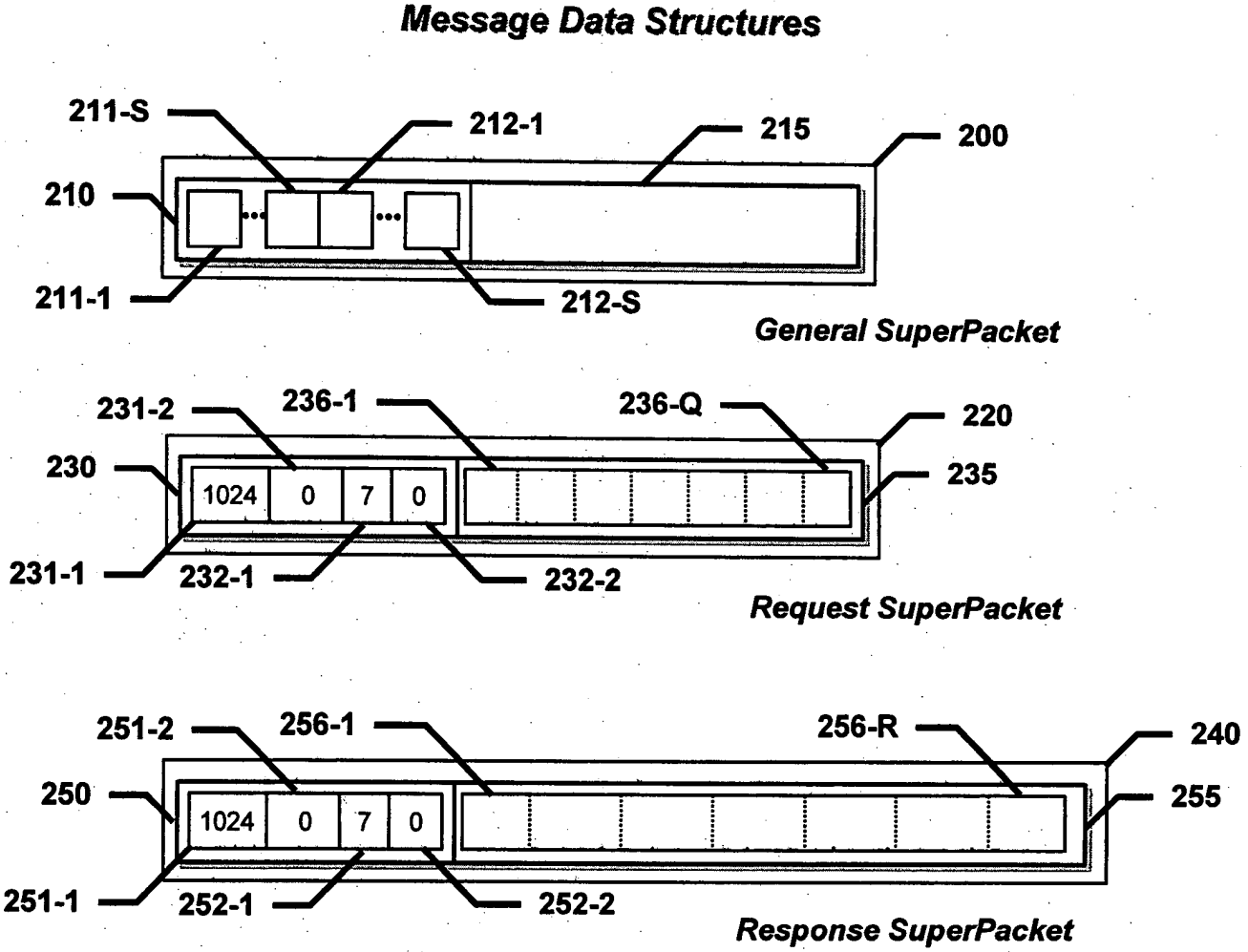
# FIG. 1



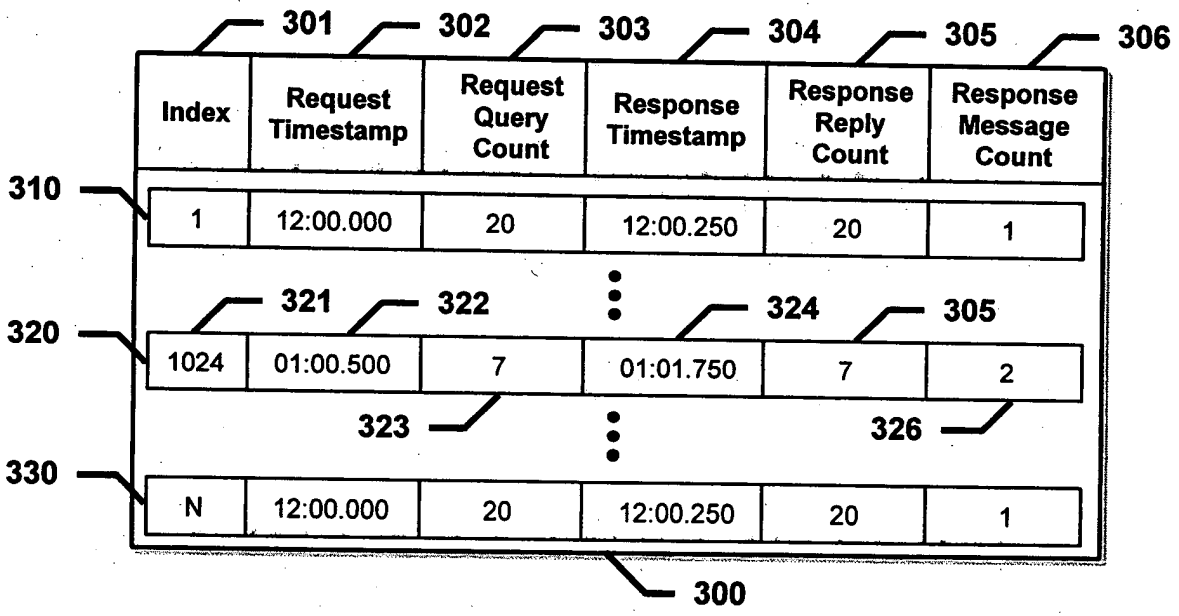

12307/100179

# FIG. 2

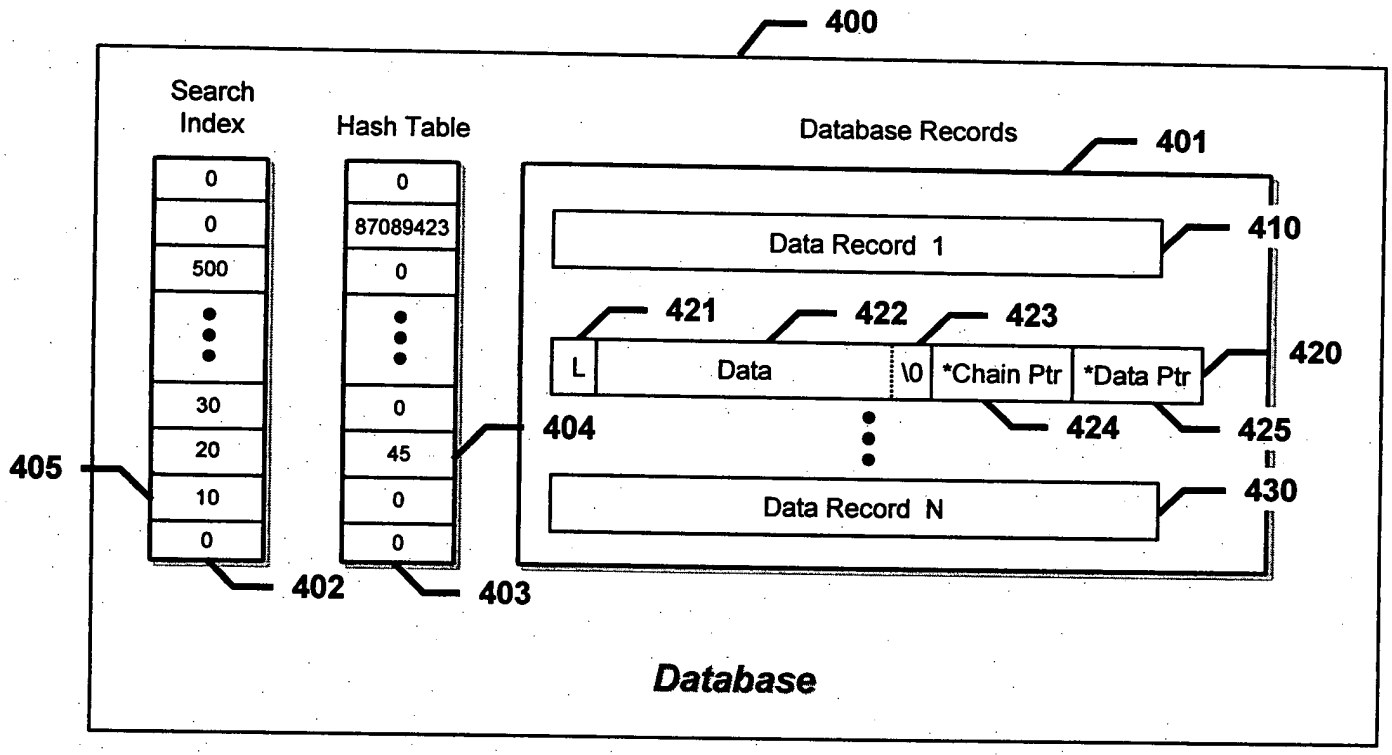

Message Data Structures
211-S
212-1
215
200
210
211-1
212-S
General SuperPacket
231-2
236-1
236-Q
220
230
1024
0
7
0
235
231-1
232-1
232-2
Request SuperPacket
251-2
256-1
256-R
240
250
1024
0
7
0
255
251-1
252-1
252-2
Response SuperPacket

# FIG. 3

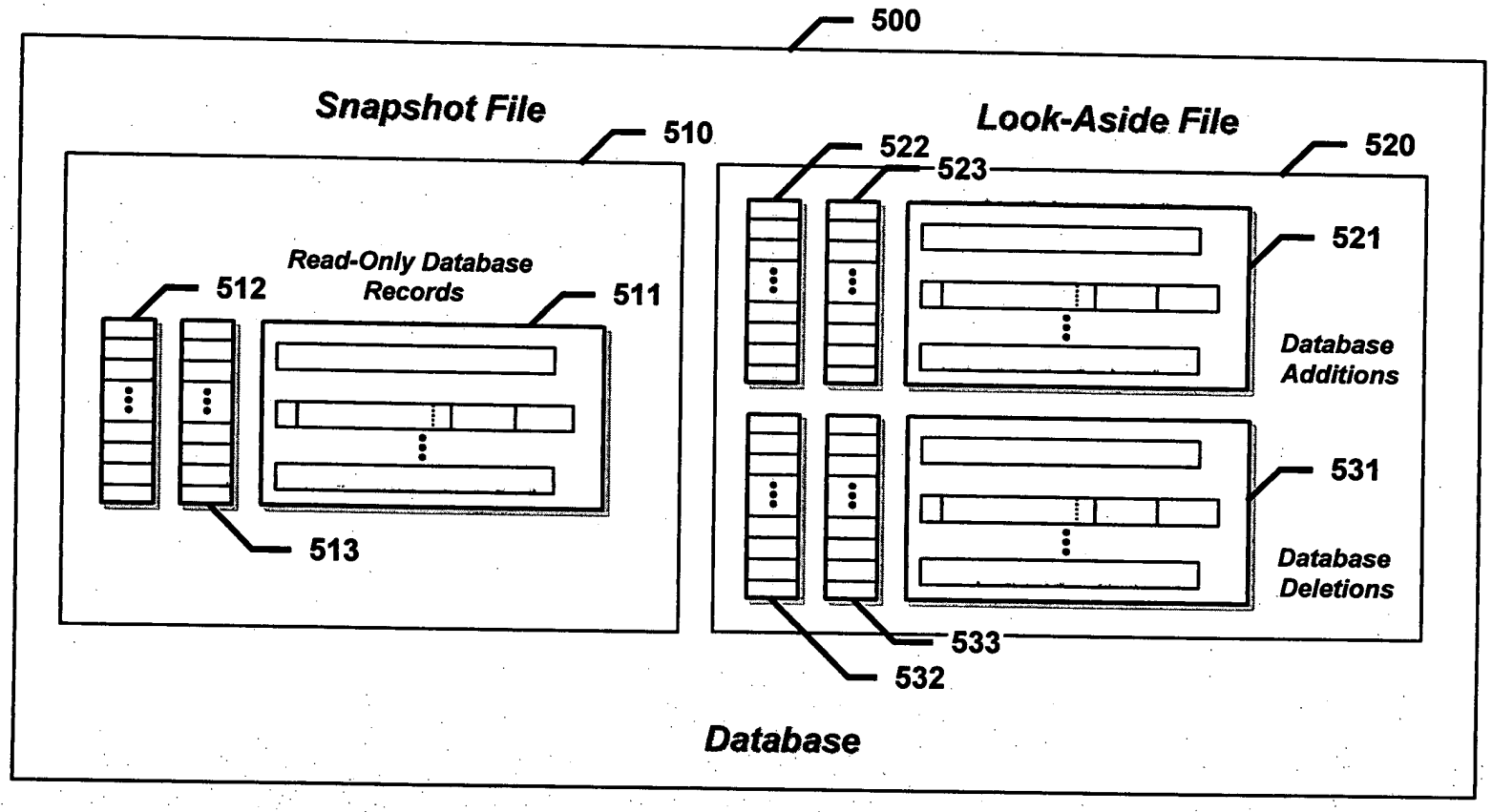
***Message Latency Data Structure***



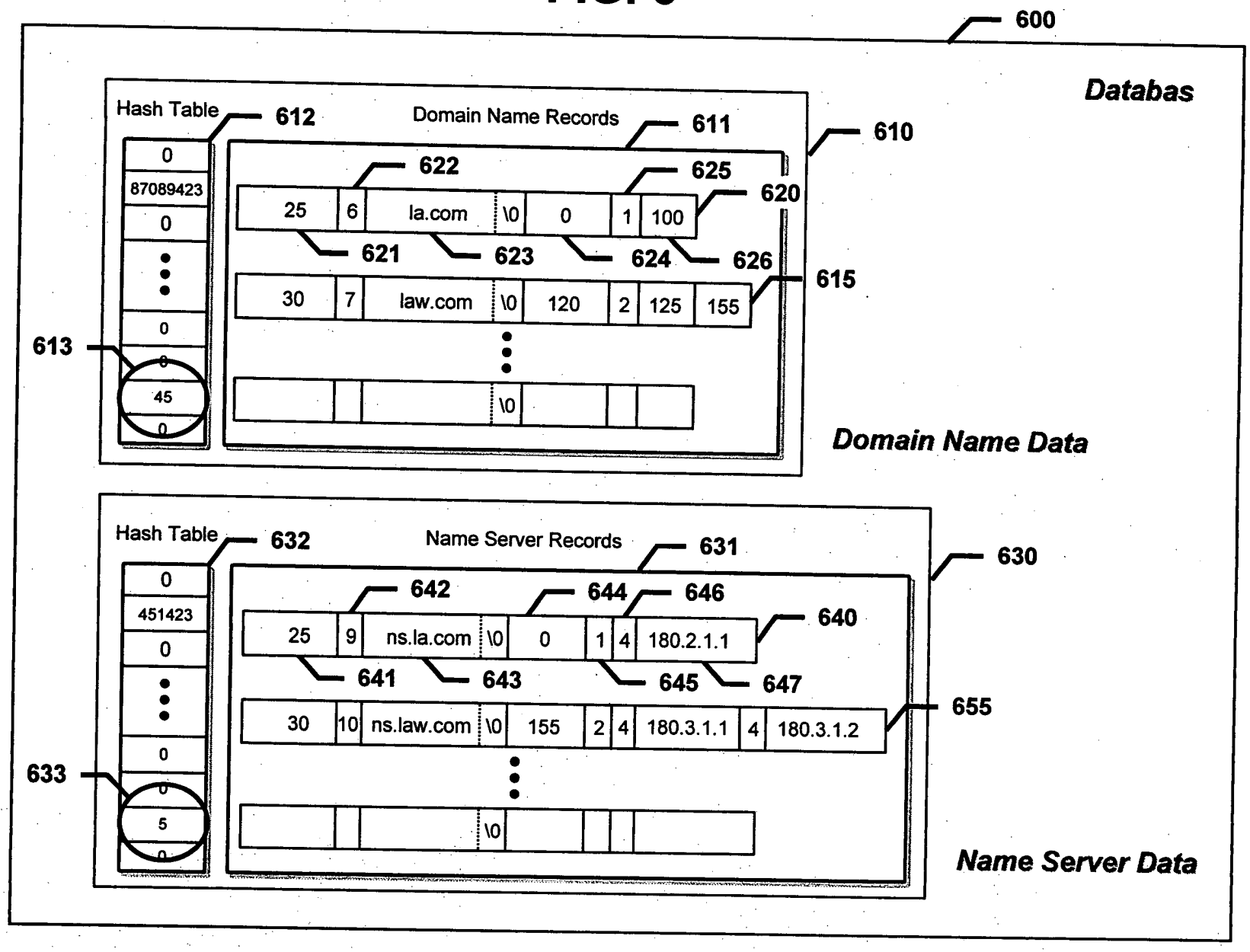
# FIG. 4


400
Search Index
Hash Table
Database Records
401
0
0
500
30
20
10
0
0
87089423
0
0
45
0
0
Data Record 1
410
421
422
423
L
Data
\0
*Chain Ptr
*Data Ptr
420
424
425
404
405
Data Record N
430
402
403
Database

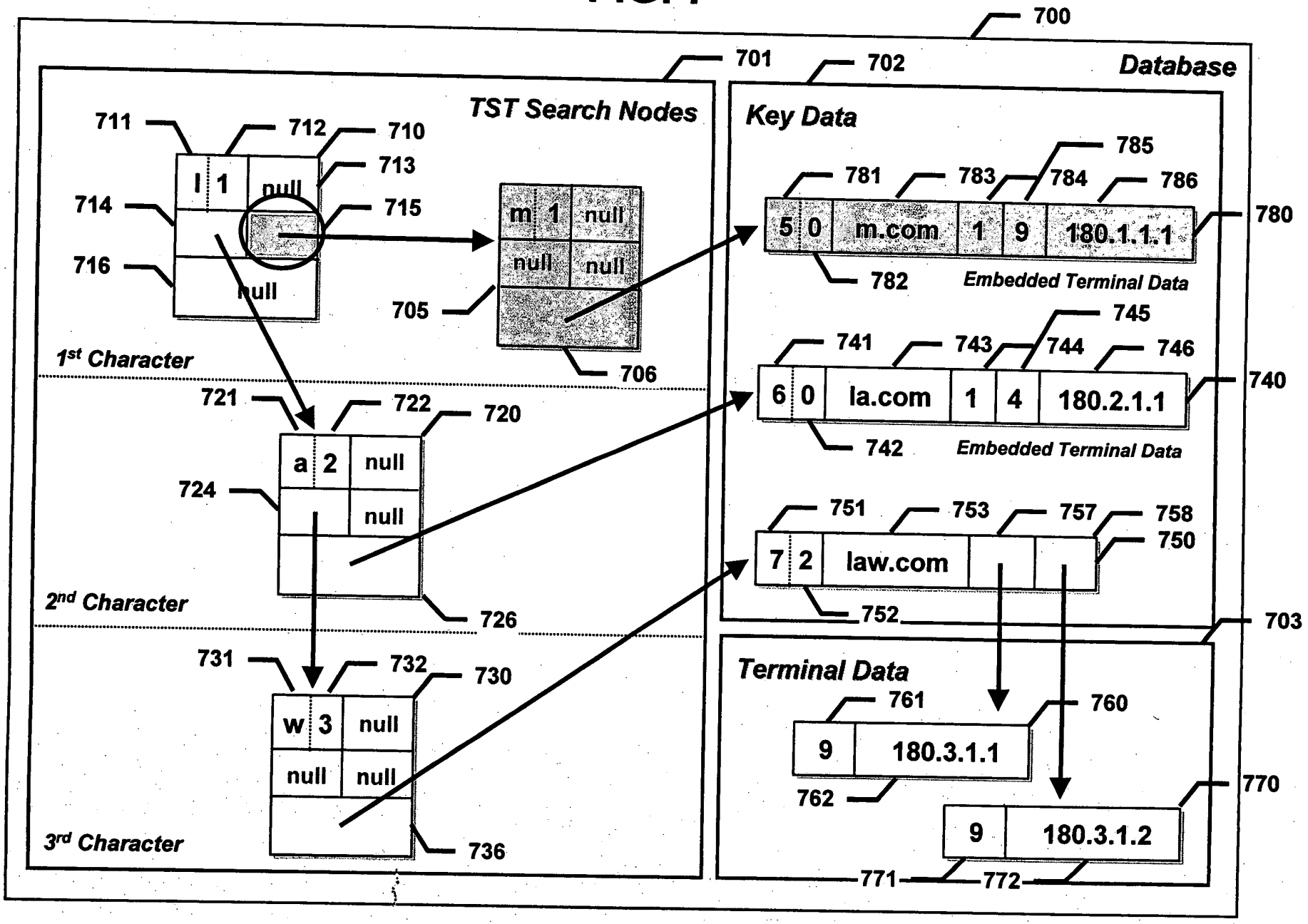
# FIG. 5


500
Snapshot File
510
Look-Aside File
520
522
523
521
Read-Only Database Records
512
511
Database Additions
531
Database Deletions
513
533
532
Database

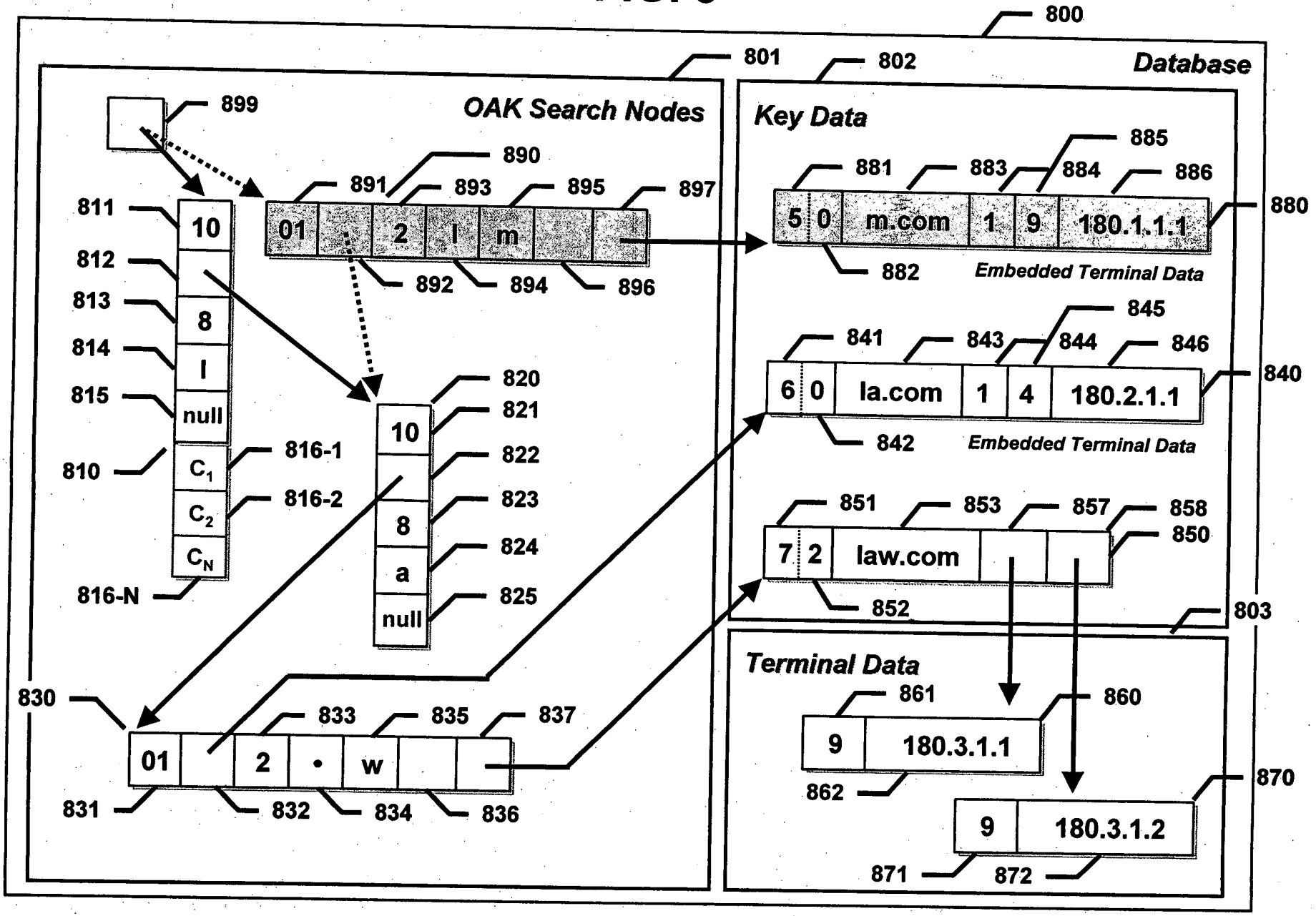
# FIG. 6


600
Databas
Hash Table
612
Domain Name Records
611
610
0
87089423
0
0
45
0
613
622
625
620
25
6
la.com
\0
0
1
100
621
623
624
626
615
30
7
law.com
\0
120
2
125
155
\0
Domain Name Data
Hash Table
632
Name Server Records
631
630
0
451423
0
0
5
0
633
642
644
646
640
25
9
ns.la.com
\0
0
1
4
180.2.1.1
641
643
645
647
655
30
10
ns.law.com
\0
155
2
4
180.3.1.1
4
180.3.1.2
\0
Name Server Data

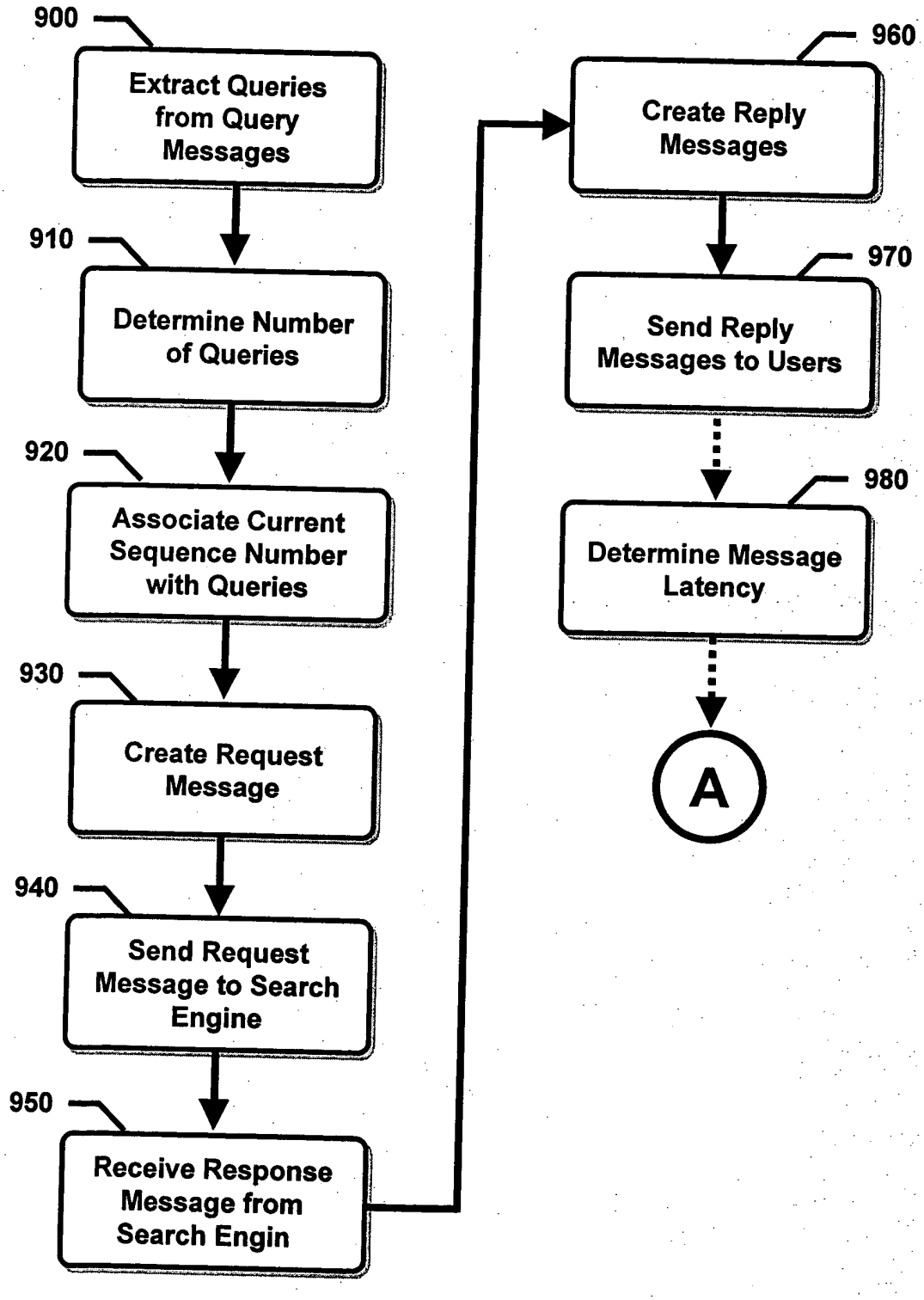
# FIG. 7


700
701
TST Search Nodes
702
Database
Key Data
711
712
710
713
714
715
716
l 1 null
null
m 1 null
null null
705
706
781
783
784
785
786
5 0 m.com 1 9 180.1.1.1
780
782
Embedded Terminal Data
1st Character
721
722
720
a 2 null
724
null
741
743
744
745
746
6 0 la.com 1 4 180.2.1.1
740
742
Embedded Terminal Data
2nd Character
726
751
753
757
758
750
7 2 law.com
752
703
731
732
730
w 3 null
null null
Terminal Data
761
760
9 180.3.1.1
762
770
9 180.3.1.2
3rd Character
736
771
772
12307/100179

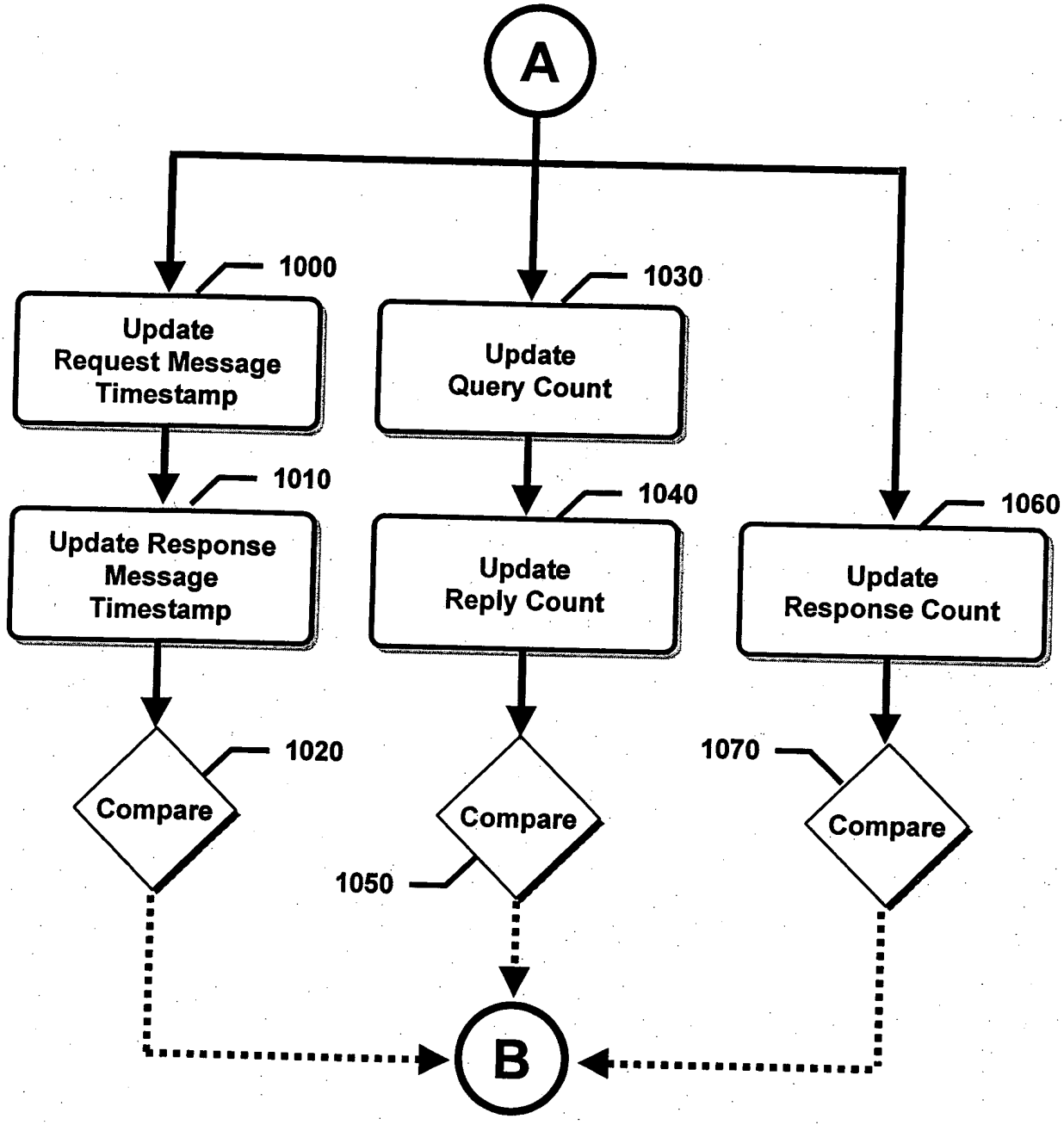
# FIG. 8


800
801
802
Database
OAK Search Nodes
Key Data
899
890
891
893
895
897
01
2
l
m
892
894
896
811
10
812
813
8
814
l
815
null
816-1
816-2
816-N
810
C1
C2
CN
820
821
822
823
824
825
10
8
a
null
885
881
883
884
886
5
0
m.com
1
9
180.1.1.1
880
882
Embedded Terminal Data
845
841
843
844
846
6
0
la.com
1
4
180.2.1.1
840
842
Embedded Terminal Data
851
853
857
858
850
7
2
law.com
852
803
Terminal Data
830
833
835
837
01
2
•
w
831
832
834
836
861
860
9
180.3.1.1
862
870
9
180.3.1.2
871
872
12307/100179

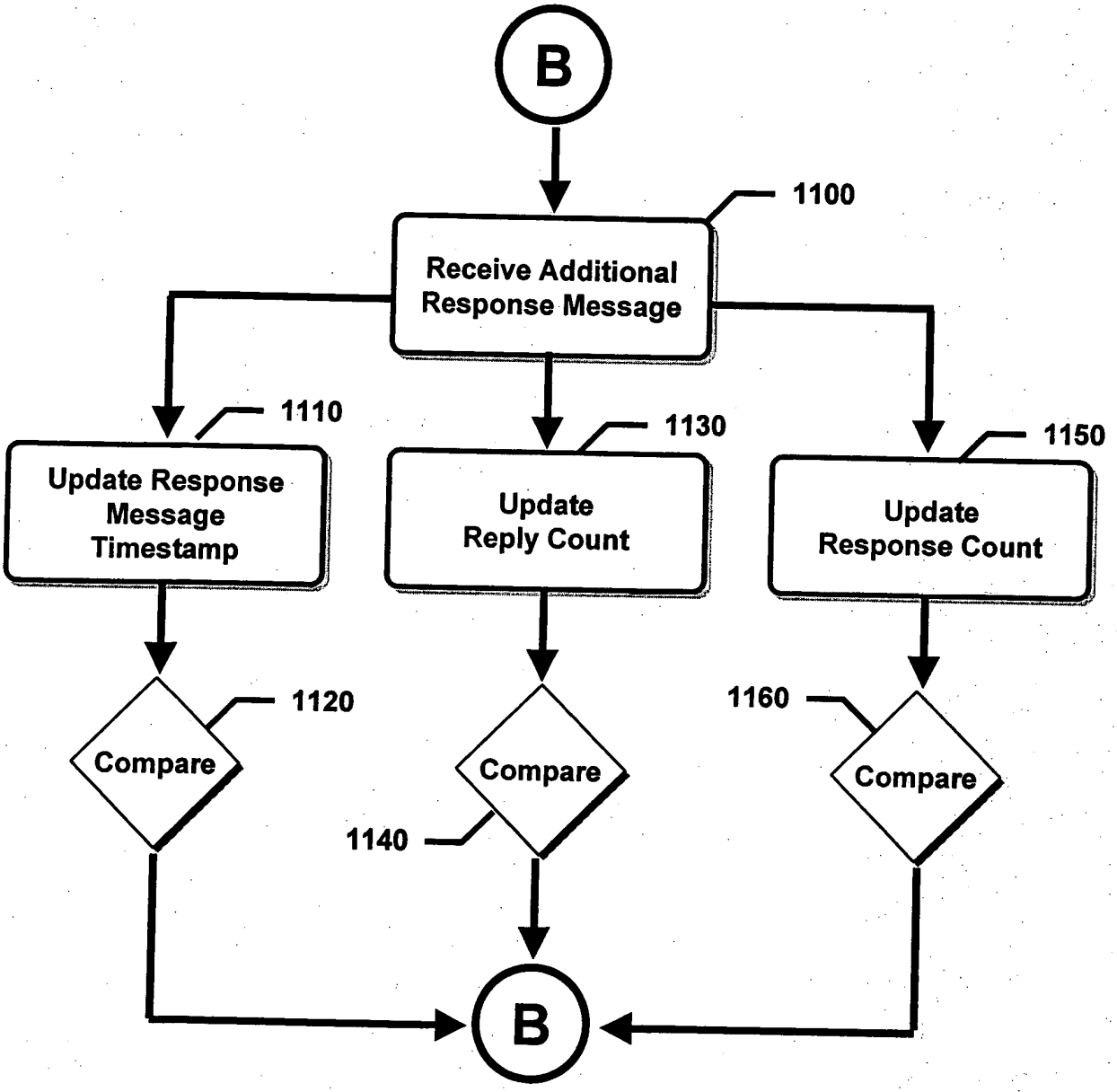
# FIG. 9


900
Extract Queries from Query Messages
910
Determine Number of Queries
920
Associate Current Sequence Number with Queries
930
Create Request Message
940
Send Request Message to Search Engine
950
Receive Response Message from Search Engin
960
Create Reply Messages
970
Send Reply Messages to Users
980
Determine Message Latency
A

# FIG. 10


A
1000
Update Request Message Timestamp
1010
Update Response Message Timestamp
1020
Compare
1030
Update Query Count
1040
Update Reply Count
1050
Compare
1060
Update Response Count
1070
Compare
B

# FIG. 11


B
1100
Receive Additional Response Message
1110
Update Response Message Timestamp
1130
Update Reply Count
1150
Update Response Count
1120
Compare
1140
Compare
1160
Compare
B